DOCUMENT RESUME

ED 176 620 HE 011 653

AUTHOR	McCarty, Marilu H.; Galambos, Eva C.
TITLE	Supply and Demand for College Graduates in the South, 1985.
INSTITUTION	Southern Regional Education Board, Atlanta, Ga.
PUB DATE	78
NOTE	39p.
AVAILABLE FROM	Southern Regional Education Board, 130 Sixth Street, N.W., Atlanta, GA 30313 ($2.50)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Bachelors Degrees; Career Choice; *Career Planning; College Choice; *College Graduates; College Majors; Comparative Analysis; Decision Making; *Employment Projections; Futures (of Society); Higher Education; *Job Market; Labor Demands; Labor Economics; Labor Market; Labor Supply; *Manpower Needs; Relevance (Education); *Southern States
IDENTIFIERS	United States (South)

ABSTRACT

Data concerning job prospects and supply/demand figures for 1985 college graduates in the southern United States are presented in this booklet prepared by the Southern Regional Education Board. Supply is defined as the number of entrants into the job market, and demand as the number of job openings in that year. The data provide an update of information compiled in an earlier report for 1980. Information about the job market for college graduates in general and for various major fields of study is presented to assist students in making career choices. The figures presented are based on the South's share of projected degrees in the U.S. according to the U.S. Office of Education. Graduates are classified in 21 field of study categories and definitions are provided for the supply and demand terms used in the data analysis. Employment prospects are discussed for 1985 graduates in the fields of health, architecture, accounting, engineering, library science, communications, law, social work, psychology, fine arts, computer sciences, mathematics, agriculture, biological and physical science, home economics, public affairs, and liberal arts. Supply and demand comparisons for 1985 are tabulated for several occupational fields showing average annual job openings and the number of degree recipients available in the related field. It is suggested that decisions about going to college and the choices of majors be based on several factors including employment outlook. Appended are data on 1985 degree recipients and a list of occupations included in the supply/demand comparison. (Author/SF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED176620

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

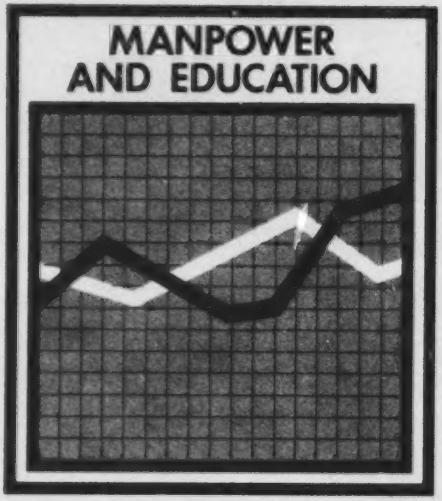
AUG 17 1979

HE

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

SREB

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."



Supply and Demand For College Graduates in the South 1985

HE 011 653

2

SOUTHERN REGIONAL EDUCATION BOARD

HIGHLIGHTS

- Only 80 percent of all college graduates in the South in 1985 are expected to find jobs in the *Conventional* job market — those professional-technical or administrative-management occupations that traditionally have appealed to college graduates.
- Openings in sales and clerical occupations will be sufficient to accommodate the remaining college graduates. For the most part, graduates in such occupations will be in "upgraded" jobs for which a college preparation was formerly the exception, but is now becoming more prevalent.
- A gradual change in defining what constitutes a "suitable" occupation for a college graduate is to be expected as an increasing percentage of the population reaches the higher levels of educational attainment.
- Most health fields will continue to provide a favorable job market for college graduates. In some allied health fields, the limited number of baccalaureate graduates will be augmented by a rapidly increasing supply of entrants with associate degrees.
- Many of the fields for which the outlook is most favorable (accounting, engineering and computer sciences) require a solid background in or orientation toward mathematics. Supply vastly exceeds demand in fields that tend to be associated with language skills, such as communications and liberal arts.
- The number of openings in occupations that appear most closely related to business administration is double the projected number of graduates in this field. As in years past, many liberal arts and social science majors will find employment in administrative-management occupations in the private and public sectors. They would be well-advised to prepare for this reality by including courses in their curriculum that relate to the everyday operation of public and private enterprise.
- Generally, the soft job market for teachers is expected to continue into the early 1980s. In some specialties, however, such as industrial arts and business education, demand exceeds supply. By the mid-Eighties elementary school enrollment will begin to rise, and this will improve the current dismal outlook for education majors.

Supply and Demand for College Graduates in the South, 1985

Marilu H. McCarty
and
Eva C. Galambos

Southern Regional Education Board
130 Sixth Street, N.W.
Atlanta, Georgia 30313

1978

$2.50

TABLE OF CONTENTS

	Page
Foreword	v
Introduction	1
Supply Terms	2
Demand Terms	4
Employment Outlook for College Graduates in the South	7
Supply/Demand Comparisons by Fields of Study	13
Methodological Notes	23
Appendix A	26
Appendix B	27
Footnotes	32

FOREWORD

The authors of this report have attempted to lay bare, and perhaps simplify, some of the complexity of manpower projections by showing that there are actually several overlapping college job markets — a conventional market of traditional "college jobs;" an "extended market," largely of sales and clerical openings; and a "marginal market" of openings which dip into the blue collar occupations.

A well-worn bit of advice by counselors is that there is "always room at the top," and that continues to hold true. Candidates compete for the most coveted jobs in this pyramid of markets, and employers at each level compete for the best qualified candidates. But the rising level of educational attainment in our society means that the distribution of college-trained persons extends through a growing range of occupations. On the one hand, this means that a college education no longer guarantees as great a potential income advantage over the average high school education. On the other hand, it means that the college degree has taken the place of the high school diploma as the standard in many occupations — it may mean the difference between a marginal job and no job at all. In short, postsecondary education is more necessary than ever before.

The practical value of these manpower projections lies in their comparisons of relative opportunity between the various occupational categories, both in helping to direct students already in the educational pipeline and in helping institutions to adjust curricula for changing needs.

Winfred L. Godwin
President

INTRODUCTION

This report presents the findings of the Southern Regional Education Board Manpower and Education Project on the supply of college graduates in 1985 in the Southern region compared to openings in which they may become employed. The data provide an update of information compiled in an earlier report which considered supply and demand balances for 1980.[1]

Information about the job market for college graduates in general and various majors is presented to assist students in making choices about career options. Decisions about going to college and the choices between majors should be made on the basis of many factors, of which the employment outlook is one aspect. A college education should meet objectives other than just preparation for employment. The choice of major depends upon the values, inclinations and aptitudes of the individual, all of which must be weighed with the employment outlook in that major. Thus, the information in this report is provided to students and counselors for consideration in decisions about college choice and majors.

Manpower research is still in a relative state of infancy, so that results must be interpreted with care. Some data elements are not yet available to researchers, such as information on the number of returning workers (for example, homemakers reentering the labor market) who compete with new college graduates, and statistics on migration of college graduates from and into a region. Moreover, manpower research operates on the basis of assumptions which may not always be realized. Examples of such assumptions are the rates of growth of various industries in Southern states on which occupational openings depend, and the percentage of high school graduates who will attend college, which influences the number of college graduates and job seekers. Despite the uncertainties inherent in manpower research, previous projections to 1980 regarding supply and demand balances in the region by various fields of study were generally consistent with actual market events to date. It is hoped that the present report will prove to be reasonably accurate in estimating major trends in the job market for college graduates.

This report analyzes the outlook for college graduates in the mid-Eighties by focusing on supply and demand in a given year, namely 1985. Supply is viewed as the stream of entrants, and demand as the number of job openings in that year.

Several terms need defining to orient the reader and aid in interpretation of the findings. The explanations given below, in effect, summarize details in methodology which are expanded in the methodological notes, page 23. Readers who are interested in greater detail may contact the authors.

SUPPLY TERMS

Projection of Supply

Estimated degrees for 1985 are based on the South's share of projected degrees in the United States, according to the U.S. Office of Education (USOE).[2] The distribution of degrees by field of study is based on changes in this distribution in the region from 1964 to 1976, with adjustments to reflect a gradual convergence of the SREB distribution toward that projected by USOE for the nation in 1985. The total number of degrees at all levels projected for the region for 1985 exceeds the 1975-1976 total by 15 percent, with more rapid rates of increase at the advanced level and a lesser increase at the baccalaureate level, reflecting moderate increases in enrollments since 1975.

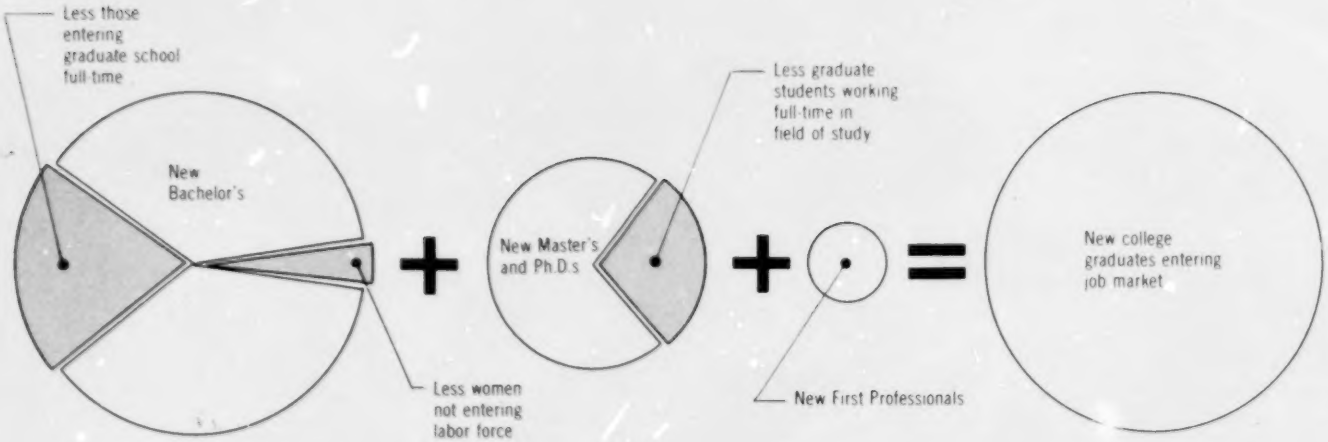
Fields of Study

All graduates at all degree levels except "first professional" were first classified into 21 categories which correspond to major Higher Education General Information Survey (HEGIS) breakdowns, with a few minor exceptions. A number of subfields, well recognized as leading to specific occupations, were chosen for separate analysis. For example, dental hygiene, as a subfield of the health field, and social work, as part of public affairs, correspond directly to employment as dental hygienists and social workers. Other subfields, such as economics and sociology, while they may lead to specific occupations of economist and sociologist, often lead to other employment, and therefore have not been projected as subfields separate from their major field of study.

Market-Ready Supply of College Graduates

The term "market-ready" differentiates the supply of total degrees projected for any one year, at all levels, from the supply of graduates in that year who are actually new entrants into the labor market. This adjusts for a small proportion of women baccalaureates who do not enter the labor market, the bachelor's degree recipients who continue as full-time graduate students and thus are not available for work, and for graduate students who were already employed full-time in their own fields while earning advanced degrees, so that they do not constitute *new* entrants into the college-level job market. Figure 1 portrays the flow of college graduates and the differentiation in any one year between graduates and market-ready supply. Total market-ready degree projections for the region in 1985 for the baccalaureate, master's and doctoral levels combined are shown in Appendix A. Total market-ready entrants are estimated as 72 percent of total degree earners in a given year.

Figure 1
TRANSLATING COLLEGE GRADUATES INTO MARKET-READY SUPPLY



"Education" Field of Study

The education field of study classification in this report has been adjusted to include the number of graduates estimated to have earned teaching certificates in conjunction with other academic fields of study. Each academic field of study that contributes graduates with teaching certificates has been adjusted downward by the corresponding estimated percentage of graduates with teaching certificates.

DEMAND TERMS

Projecting demand for college graduates assumes that employment in certain occupations will require a college degree for all or a major part of the available openings in those occupations. However, a definitive delineation of where in the total array of occupations the college job market ends cannot be made. Therefore, demand projections for college graduates are constructed on the basis of alternate assumptions. Three possibilities are presented in this report and defined below:

The Conventional College Job Market — this projection includes all or a major portion of the openings in each occupation included under the major groups of "Professional-Technical," and "Managers and Administrators."

Not all openings in each occupation in these major groups will require a college degree. At one extreme, all openings for teachers are expected to be filled by college graduates, but only a portion of all openings for purchasing agents will require the degree.

Extended College Job Market — this projection adds to the *Conventional projection* some openings in the sales and clerical occupations. In recent years, a growing number of college graduates have been employed in sales and clerical work. This situation mirrors the interaction of the availability of enough graduates to spill over into sales and clerical jobs as well as the more rigorous educational requirements established by some employers when they hire personnel.

Marginal College Job Market — this projection adds to the *Extended projection* additional openings in the remaining major occupational groups — blue collar, service and farm workers. The small percentage of openings expected to be filled by graduates in these remaining major occupational groups should not be interpreted as a sign that a degree is required in these occupations.

Some college graduates have always gravitated into employment as waiters, carpenters or truck drivers.

Job Openings

Job openings in any occupation occur because of expansion, as industries grow, and from the need to replace workers who retire, die or separate from the labor force for other reasons. Both types of openings are included in this analysis. Demand is stated in terms of average annual openings projected for 1974-1985.

Average annual openings, by occupation, which comprise the primary source for the demand statistics used in this analysis, are derived from the reports issued by the employment security agency in each of the 14 Southern states. These state reports have been developed under the U.S. Bureau of Labor Statistics' Occupational Employment Survey program.[3] Each state report provides projections of employment, by industries, to 1985, as well as average annual openings, by occupations, for the 1974-85 period. The openings reflect growth and replacement needs for each occupation across all industries in each state.

Of the more than 1.6 million average annual job openings, almost 226,000 will be in professional-technical occupations, which provide the greatest number of employment opportunities for college graduates. Average annual openings for the region in 1985 are summarized in Table 1. Sixty-five percent of all openings are accounted for by replacement needs.

Table 1

AVERAGE ANNUAL OPENINGS, 1974-85
SREB REGION

	All Occupations	Professional-Technical Occupations	Management & Administrative Occupations	Sales Occupations	Clerical Occupations
Due to Growth	568,900	94,500	63,800	34,900	138,100
Due to Replacements	1,035,400	131,400	94,700	74,600	249,500
Total Openings	1,604,300	225,900	158,500	109,500	387,600

The openings due to growth reflect the continuing favorable outlook for economic growth in the region relative to national growth rates. Lower production costs for labor, energy, land, and taxes are among the factors expected to maintain the South's momentum through the 1980s in attracting an increasing share of the nation's employment. Development of new industry to serve both national and regional markets results in population growth, as well as higher income levels,

which then add regional buying power to generate additional economic growth.

The entire mix of all occupations is included in the list of over 220 occupational categories for which the states give estimates of openings. For some categories, such as registered nurses, the jobs included are self-evident. For other categories, however, such as manager-administrator, the variety of occupations included is much broader, covering anything from a fashion coordinator to a car dealer. Detail on specific job titles subsumed under the occupations listed in this report may be obtained from the *Classified Index of Industries and Occupations*.[4]

Portion of Openings to be Filled by College Graduates

In many occupations not all openings will be filled by college graduates. Although it is to be expected that no school system will employ as a teacher one who is not a college graduate, many openings in occupations such as registered nurse or personnel worker will be filled by non-college graduates, perhaps with associate degrees or other preparation. Thus, it is necessary to estimate the proportion of openings in each occupation that will be filled by college graduates. This was done by extending to 1985 the past trends of the proportion of college graduates *employed* in each occupation. The resulting percentages were then converted to the corresponding proportion of *openings* to be filled by college graduates. Past trends of educational attainment in major occupational groups were projected according to two separate assumptions: that the increasing educational attainment level of employed persons will gradually level off, and, alternately, that it will increase at the same rate as it has since the late 1960s. The two methods yield the lower and upper limits of the range of average annual openings for the *Conventional, Extended* and *Marginal College Job Market projections*.

EMPLOYMENT OUTLOOK FOR COLLEGE GRADUATES IN THE SOUTH

These projections may be viewed from two perspectives: (1) the total number of available college graduates relative to openings for college graduates — regardless of fields of study, and (2) the supply-demand comparison for any one specific field of study. The summary of findings for the three projections is shown in Table 2, and illustrated in Figure 2.

Comparison of the supply and demand projections shows that, while college graduates generally will not be unemployed, not all will find professional-technical or managerial-administrative jobs. Extension of past trends shows that demand in the *Conventional* job market will be sufficient in 1985 to provide openings for approximately 80 percent of the market-ready college graduates in the region. Openings in sales and clerical occupations will be numerous enough to accommodate the remaining 20 percent. This means that college graduates must reconcile themselves to the reality that they will not all find challenging jobs in what has traditionally been considered the market for college graduates.

A gradual change in defining what constitutes a "suitable" occupation for a college graduate is to be expected as an increasing percentage of the population reaches the higher levels of educational attainment. In earlier times, when a small proportion of the nation's high school graduates enrolled in higher education, college degrees tended to be earned by the intellectual elite. In just 20 years, the proportion of college-educated workers in the United States has doubled. As a higher percentage of the total population attends college, a wider dispersion in achievement levels is reflected by college graduates. As the composition of the pool of college graduates changes, it is natural that the definition of what constitutes a "suitable" job for a college graduate would also change and encompass an ever-widening scope of occupations among the total array of jobs.

The 1985 outlook for graduates in the region is somewhat more favorable than for the nation as a whole. The percentage of Southern college graduates expected to be accommodated in the *Conventional* job market exceeds that for the United States. However, this favorable outlook could be modified as graduates from other regions move South to avail themselves of these opportunities.

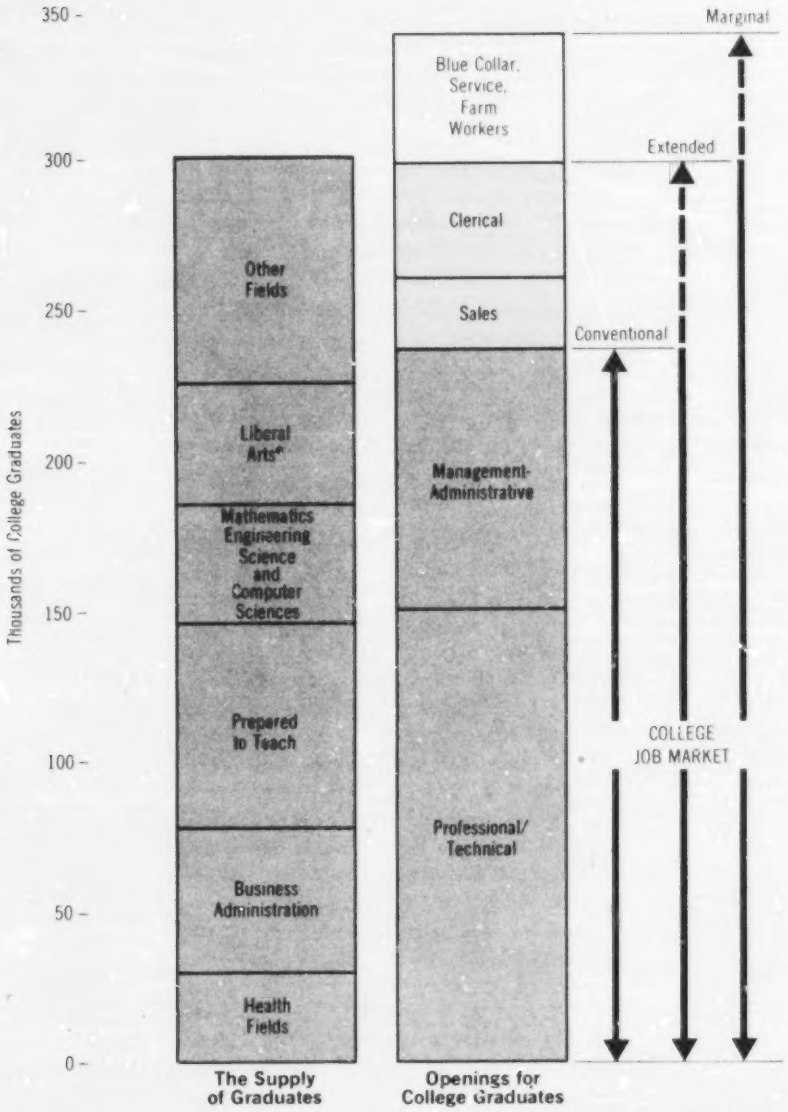
The population influx of recent years to the "sunbelt" is expected to continue. The projected moderate increase in the supply of market-ready college entrants into the labor market reflects this population shift. As more families move to the South, their children attend Southern colleges and are included in the projected supply in 1985. But, in addition to this migration which is already accounted for in this analysis, other college graduates will move to the Southern states from

Table 2

SUPPLY AND DEMAND COMPARISONS
JOB MARKET FOR COLLEGE GRADUATES
SREB REGION, 1985

	Openings for College Graduates						Surplus or (Deficit) Against Supply of 298,000
	Low Estimate			High Estimate			
Conventional Job Market							
Professional-Technical Occupations	145,600			152,600			
Management-Administrative Occupations	83,200			89,100			
		228,800			241,700		56,300-69,200
Extended Job Market							
Sales Occupations		19,500			24,600		
Clerical Occupations		27,600			52,100		
			275,900			318,400	(20,400)-22,100
Marginal Job Market							
Blue Collar Occupations							
Service Occupations			39,500			39,500	
Farm Worker Occupations							
			315,400			357,900	(17,400)-(59,900)

Figure 2
THE JOB MARKET FOR COLLEGE GRADUATES IN THE SOUTH, 1985



*Fine Arts, Languages, Letters, Social Science

regions with tighter job markets. For example, the North Central states produce one-fourth of the nation's Ph.D.s, but provide jobs for only one-sixth.[5] Some of this surplus will wend its way to the "sunbelt" to compete with graduates from the region's institutions.

To the extent that in-migration of college graduates into the region exceeds out-migration, the job market for college graduates will be softer than the findings shown in Table 2 and Figure 2.

Returning workers with college degrees will provide additional competition to graduates in 1985. Women who leave the labor force and then reenter when their children start school are an example of such reentrants and constitute a substantial additional supply of labor, especially in fields such as nursing and teaching. They have not been included on the supply side in this analysis.

Marginal Job Market

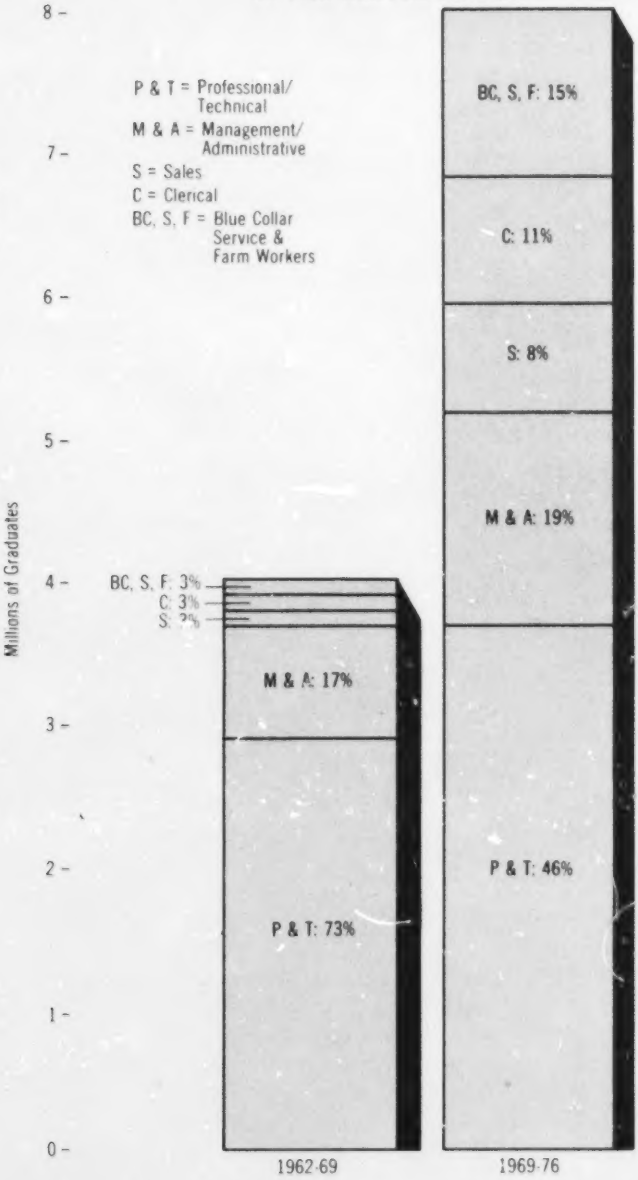
Job openings for college graduates in the *Marginal* job market (blue collar, service and farm workers) do not represent a *requirement* for that level of education, but an extension of the recent trend in the proportion of employment in these occupations that is college-educated. The 39,500 openings for college graduates estimated for 1985 in the region's *Marginal* job market represent a proportion of college-educated workers of less than four percent in these occupations, as compared to an actual three percent in 1976.

A limited number of college graduates have always gravitated into craft, service or other "non-traditional" jobs. Some do so temporarily, while looking for other jobs. The extent to which college graduates will filter into the *Marginal* job market will depend largely on how well they may be accommodated in the *Conventional* and *Extended* job markets. If demand turns out to be closer to the bottom of the projected range, as shown in Table 2, and if in-migration, returning workers and other non-accounted-for variables swell supply above the projected 298,000 market-ready college entrants, the spillover into the *Marginal* market may be substantial. If, on the other hand, the upgrading process in management-administrative, sales and clerical occupations occurs rapidly, nearer the top of the projected range, more college graduates will be absorbed in the *Conventional* and *Extended* job markets, with a lower spillover into the *Marginal* market.

National Trends in the Job Market for College Graduates

The changes in the projected job market for college graduates in the region have been occurring rapidly in the United States during the past decade. The 1960s were the golden age for college graduates. Of those who finished during the 1960s, approximately 73 percent moved into professional and technical occupations and 17 percent into managerial

Figure 3
JOBS ENTERED BY COLLEGE GRADUATES IN THE UNITED STATES



SOURCE: *Occupational Outlook Quarterly*, Spring, 1978

and administrative jobs.[6] By the early 1970s, prospects for college graduates had changed dramatically. The numbers of new graduates had approximately doubled, and the *absolute* number of graduates achieving conventional college jobs had increased also. However, the *percentage* of graduates going into professional and technical jobs had dropped to 46 percent, and the percent going into management and administration remained almost constant at 19 percent. In the meantime, the sales component of job opportunities for college graduates increased substantially, both in absolute and relative terms: from three percent in the 1960s to eight percent in the mid-Seventies. (See Figure 3.)

The bulging supply of college graduates, coupled with a lagging growth in demand, produced a major shift into jobs formerly considered inappropriate for college-trained workers. In fact, by 1976 one of very four new graduates was accepting employment in jobs classified as clerical, blue collar, service or farm work. Although some of these jobs have been upgraded to require skills acquired in college, others underutilize the graduates' training.

Moreover, there is evidence that, due to the recent huge additions of college graduates to the labor force, chances for advancement up the job ladder have diminished for the individual graduate.[7] Never before have workers aged 25 to 34 comprised so large a share of the work force as they will for the next decade. Although separations of older workers will provide many opportunities for advancement, the pool competing for upward mobility will be larger than ever before.

The U. S. Bureau of Labor Statistics projects that between 1976 and 1985 more than 10 million new college graduates will enter the labor force, but only three out of four will find jobs in the traditional job market for college graduates.[8] Not all is grim, however; surveys of college graduates indicate that many who take jobs unrelated to their studies are at least moderately satisfied. This reflects changing expectations and the acceptance of two concurrent trends — the broadened definition of the job market for college graduates and the wider range of abilities of students who earn degrees. Changing expectations about work may be reflected in greater appreciation of jobs which enlist a smaller fraction of the worker's capacity, but allow greater emphasis on the pursuit of personal development in leisure activities. Also, many young workers appear more interested in the creative craftsmanship and individual expression that are possible in some blue-collar and service occupations.

SUPPLY/DEMAND COMPARISONS BY FIELDS OF STUDY

In addition to comparing overall prospects for 1985 college graduates in the region, this report examines opportunities by fields of study. Such analysis is more feasible and meaningful for some fields than for others. Where there is a clear correspondence between a field of study and an occupation (as for example the field of nursing versus openings for registered nurses), appropriate comparisons of market-ready degrees versus openings are self-evident. However, there are many fields of study that lead to a great variety of occupations; and, vice versa, occupations draw their labor force from a multiplicity of academic fields. Social science graduates may end up as historians, office managers or salesmen. Or, alternately, salesmen's jobs may be filled by business administration, English or math majors, to give only a few examples of the difficulty inherent in such comparisons.

This correspondence problem is handled in two ways in this report. Comparisons for field of study, where the correspondence to specific occupations is well recognized, are shown in Table 3. The correspondence between each of the fields in Table 3 and the occupational categories included in the respective demand projections are itemized in Appendix B. Most occupations included in the demand projections in Table 3 fall in the professional-technical area. Fields where the correspondence is less obvious are discussed later on a field by field basis.

The Health Fields

Taken as a whole, the health fields will continue to provide a favorable job market for college graduates. This is especially true at the professional levels for *doctors, dentists* and *other health practitioners*, where demand appears to exceed supply for the foreseeable future.

The number of *occupational and physical therapy* graduates is limited and indicates a favorable job market. Unfortunately, however, the demand projection for therapists lumps all types of therapists together, so that it is impossible to draw definite conclusions about the outlook for special therapy fields. *Hospital and health care administration* promises a continued favorable market. The number of persons with specific training in this area is limited. Some openings for hospital and nursing home administrators and related personnel will be filled by graduates with degrees in business management training rather than in hospital and health care administration.

The apparent oversupply of *registered nursing* graduates is misleading. The projection of demand for baccalaureate nurses is an extension of the past trends for registered nurses with this level of education. There is now considerable emphasis by the nursing profession

Table 3

SUPPLY/DEMAND COMPARISONS SREB REGION, 1985

	Average Annual Openings Low*	High*	Market-Ready Degrees
Health Fields			
Hospital & Health Care Administration	1,850	2,000	450
Registered Nursing	4,800	5,450	9,600
Occupational Therapy			250
Physical Therapy	2,150	2,450	550
Speech Audiology			2,275
Dentistry	2,700	2,700	1,600
Medicine	8,500	8,500	4,700
Other Health Practitioners	1,300	1,300	1,050
Pharmacy	2,150	2,150	2,650
Medical Lab Technology	2,000	2,300	1,700
Radiologic Technology	150	200	100
Dental Hygiene	650	700	550
Other Professional Fields			
Architecture	2,100	2,200	3,375
Accounting	9,750	11,100	11,000
Communications	4,600	5,200	10,100
Education	52,500	53,100	71,500
Engineering	15,550	16,250	15,150
Law	7,200	7,200	8,000
Library Science	3,100	3,750	1,900
Social Work	5,500	5,500	7,750

*Differences in the low-high projections hinge on varying assumptions about the percentage of college graduates in an occupation. Where all openings in an occupation are bound to be filled by college graduates, the two projections are the same.

to upgrade training requirements, so that the percentage of openings for baccalaureate nurses in the future may increase more rapidly than in the past. At any rate, total openings, regardless of level of training, projected for registered nurses in the region for 1985 total 21,500. This exceeds the 20,500 registered nursing completions in 1976 at *all* levels of training.[9] (The number passing licensing exams, and thus available for employment, is somewhat lower.) Of the 1976 graduates, only approximately one-third were college graduates, but this percentage will rise.

Medical laboratory technology, dental hygiene, and radiologic technology will continue to offer good opportunities. The apparent supply deficit of college graduates in these fields will be made up by associate degree and vocationally trained graduates in these fields who are entering the labor market in ever-increasing numbers.

Pharmacy is the one health field in which supply is projected to exceed openings. The current tight situation in this field is expected to continue unless enrollments in pharmacy colleges decline, or unexpected opportunities open up in the health industry to increase the role of pharmacists in health delivery systems.

Other Professional Fields

Architecture will continue to be a very competitive field for graduates unless presently unexpected developments occur to vastly accelerate construction. Demand in this analysis includes not only openings for architects, but also a limited number of openings for surveyors and draftsmen who are projected to require a college degree. However, openings for urban planners who often are trained in schools of architecture are not included, since they are not specified separately from other social scientists in the basic data.

The field of **accounting** is more favorable than the balanced supply/demand outcome of the data indicates. The supply of accounting graduates is overstated to the extent that some accounting majors do not take jobs as accountants, but rather as administrators and managers. Thus, accounting is another area in which the market should continue to be quite favorable.

Engineering graduates also may look forward to continued high demand. The occupations in the demand projection include all of the various engineering classifications, as well as a portion of openings for engineering and science technicians, flight engineers, pilots, air traffic controllers and related occupations. Even if the occupations which are not strictly labeled under engineering are excluded, the demand outlook is still generally in balance with projected supply. Moreover, there are some graduates in engineering who enter management rather than engineering jobs, which would have the effect of diminishing the supply.

Library science also appears to be a field with a favorable outlook, although graduates should take into account that library jobs are quite sensitive to changes in governmental funding, and that libraries are sometimes the first to be hit when public budgets are cut.

Four fields in which supply appears to outnumber demand are education, communications, law and social work. Although in recent years fewer freshmen indicate that they will major in **education**, education degrees still comprise a major portion of total degrees. The current very soft job market for graduates with teaching certificates will continue into the mid-Eighties, especially in the urban and metropolitan areas. The situation, however, is not totally gloomy. Graduates prepared to teach in some special fields, such as industrial arts and business education, are in demand. Even if current low birthrates continue into the next decade, the age structure of the population is such that primary grade enrollments will begin to rise in the mid-Eighties. Overreaction by college students to the current dismal outlook for education majors could reduce supply by the mid-Eighties below the number of available job openings and result in a sudden turnaround of today's oversupply.

For **communications majors**, occupations included in the demand side of the analysis are editors and reporters, radio and television announcers, advertising agents and salesmen, public relations workers and publicity writers. Even with this broad span on the demand side, supply vastly exceeds average annual openings.

In **law**, the current glut of graduates will continue into the early-Eighties. Supply is understated in Table 3 since it does not include graduates from non-American Bar Association approved schools.

The competitive outlook for **social work** majors may be worse than indicated in Table 3 if government budget cuts affect their job market, and if non-social work majors continue to compete for available openings in this field.

Business Administration

Business administration majors will be among the most fortunate graduates entering the job market. A major reason for this is that generally there is more leeway to upgrade educational attainment levels in management, administrative and sales jobs than in the professional-technical occupations where rapid upgrading already occurred during the past two decades. Rising educational requirements in business and management reflect the increasing complexity of running any enterprise, public and private. Legislation on taxes, social security, retirement plans, affirmative action, safety requirements, and environmental standards produce paperwork and administrative responsibilities in managing any organization. The result is a shift to white collar workers with higher educational attainment levels in most industries—

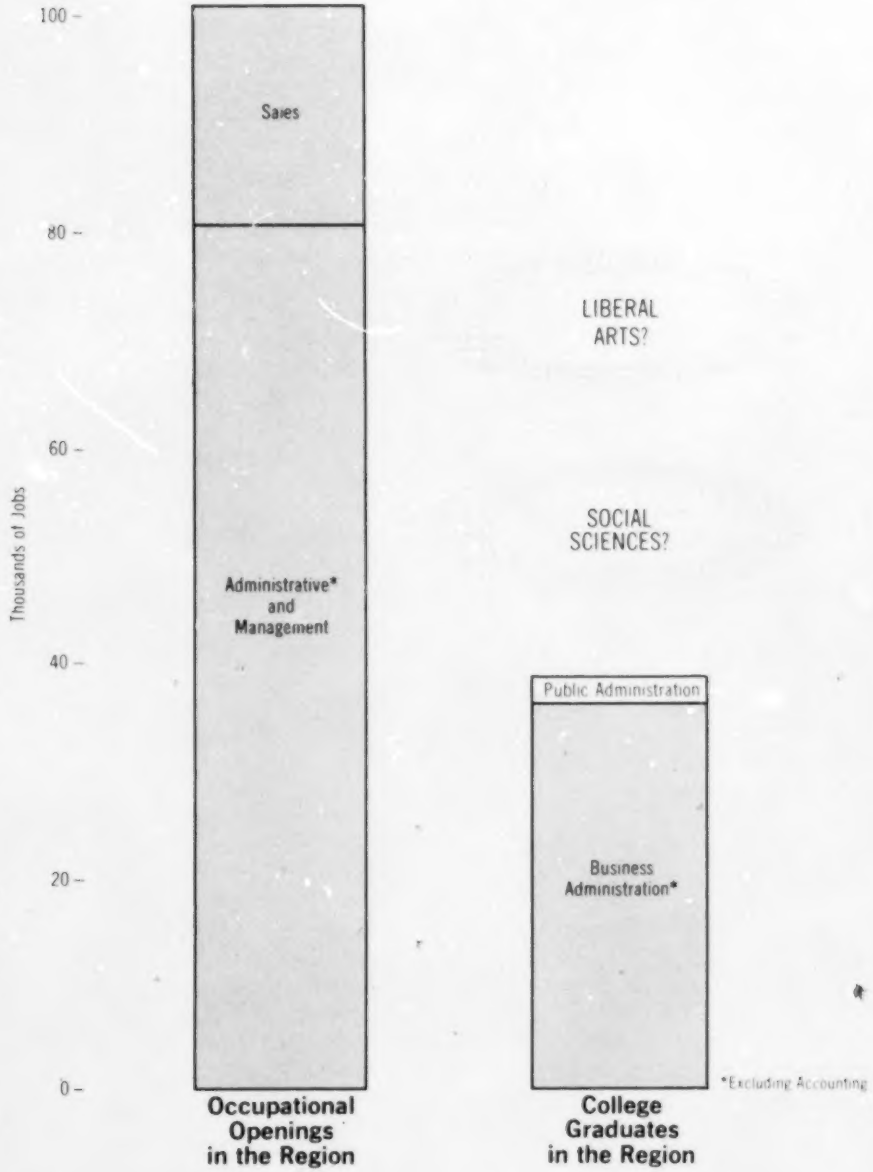
from manufacturing plants to central banking institutions. The percentage of college graduates entering managerial and administrative occupations will continue to increase during the next decade.

The variety of occupations for which a business administration degree is appropriate preparation is tremendous, ranging from bank officers to restaurant managers, or from personnel workers to freight dispatchers. An increasing proportion of the jobs in sales is filled by college graduates because they are available, and also because the products sold and the customers who buy them are more technically sophisticated. Selling a computer obviously requires a great deal more educational background than selling a tractor. Also, the trend toward larger self-service retail establishments tends to accentuate the need for college-trained sales managers as opposed to counter clerks.

Estimated average annual openings in management and administrative occupations for which a business administration degree, other than accounting, appears most closely related total 72,400 to 84,500 or double the 36,300 projected market-ready degrees in that field. This does not mean that jobs in these occupations will go unfilled, but rather that they will be filled by graduates with other majors. Many history, English and other liberal arts majors have found employment in past years as administrators, sales managers or personnel workers. This will continue, but the number of such competing graduates will be larger, as teaching jobs and other professional-technical work becomes harder to find. Liberal arts majors who have completed "practical" courses, such as statistics, marketing or personnel administration, or who have had some relevant employment experience will have an advantage in this more competitive environment. (See Figure 4.)

In addition to the occupations in the management and administration areas, business administration majors may also find employment in sales and clerical occupations. The specific occupations included in each of these areas are shown in Appendix B. Although management and administration occupations are more traditionally associated with a college education than those in sales or clerical work, there are notable exceptions: stock and bond brokers in the sales area, and insurance adjusters and bookkeepers in the clerical group. An estimated 18,900 to 23,500 annual openings in sales occupations and 27,200 to 51,300 in clerical occupations in the region will be filled by college graduates. Although the percentage of college-educated employment in sales and clerical jobs will be much lower than in professional-technical and managerial-administrative work, total employment in sales and clerical work is high. Thus, an even moderate upgrading, as employers raise required qualifications, has the effect of producing numerous openings for college graduates. The distribution of openings in these three areas for which a business administration degree may be appropriate prepara-

Figure 4
WHO WILL FILL THE GAP?



tion is 57 percent in the management and administration occupations, 15 percent in sales, and 28 percent in clerical work.

One of the most common complaints of employers is the lack of communication skills among recent college graduates. Thus, business administration majors would be well served by concentrating their electives on courses in which writing and oral communication skills are stressed.

Psychology

For this discipline, the directly related occupations are psychologists, and possibly vocational and education counselors, with 450 and 3,400 average annual openings respectively. This is far below the projected 11,000 market-ready graduates in psychology. Education majors and social work majors may also seek counselor openings. Fortunately, preparation in the field of psychology is transferable to occupations in business (sales and personnel work are two examples). The vast majority of psychology graduates obtain only baccalaureate degrees; employment as a psychologist almost universally requires an advanced degree.

Fine Arts

Six occupations specifically seem appropriate for comparison to the supply of art majors: musicians and composers; painters and sculptors; photographers; archivists and curators; writers, artists and entertainers; and designers. The number of estimated openings for persons with a college degree in these occupations is only 30 percent of those expected to enter the market with degrees in this area. A portion of the art majors is expected to seek teaching jobs, but it has been included in the supply of education majors. The outlook for this field is unfavorable.

Computer Sciences

Occupations for which a major in computer sciences seems appropriate are computer programmers, computer analysts, operations research workers, and other computer specialists. The projected number of openings for college graduates is 4,300 to 4,900, almost double the expected supply. This is one field which promises to be very favorable for college graduates in the 1980s.

Mathematics

The projected supply in the field of mathematics is almost 3,000 market-entrants. (Those estimated to have completed teacher certification requirements are not included in this number.) Yet the average annual openings projected for mathematicians, statisticians and actuaries is only 750. It is highly unlikely, however, that graduates in the

field of mathematics will have difficulty in finding jobs. Many will come with preparation in computer programming, and the supply of graduates in computer sciences is vastly below the number that industry will need in the coming years. Other mathematics majors will find employment in business and industry in a wide array of occupations. The ability to deal with numbers is a frequent prerequisite for many jobs, and yet constitutes one of the most common weaknesses among college graduates.

Agriculture

There are few occupations in the professional, managerial, sales and clerical categories that appear to be particularly relevant for agriculture majors. Agricultural scientists, foresters and conservationists, farm products buyers and agricultural technicians are expected to provide some 300 annual openings for college graduates, vastly below the projected market-ready entrants. However, some graduates may become farmers or farm managers, or managers and administrators in organizations dealing with farm products.

Biological and Physical Sciences

Openings for biologists, chemists, chemical technicians and other scientists total 2,700 to 2,900, well below the projected market-ready graduates in biology and physical science. Many baccalaureates in these fields will find employment in other occupations that have relevance to their training, such as pharmaceutical salesmen or laboratory technicians. Although the specifically identified openings for natural science graduates are low relative to supply, graduates in these fields usually have specific skills that are transferable to various occupations, enhancing their employability.

Home Economics

Over 4,100 home economics annual market-ready graduates are projected for 1985. The occupations that have a direct relationship to this field are dietitians and home management advisors, with only 550 to 625 average annual openings. Other suitable occupations for home economics majors, which are also compared to the supply of education, art, and business administration graduates, are kindergarten teachers, designers, restaurant and bar managers, and buyers for retail stores, which includes those handling textile products. The market for home economics majors overlaps that for graduates from other disciplines; it is impossible to project the shares of openings which each discipline will garner in occupations for which various educational approaches are feasible.

Public Affairs

The public affairs field covers several distinct specialties, including social work, public administration, parks and recreation management, and law enforcement. According to the projections, market-ready social work graduates will outnumber available openings for social workers by 40 percent. In addition, liberal arts majors also compete for social worker openings. Competition will be stiffer in metropolitan than in rural areas. The employment level for social workers is especially vulnerable to shifts in public policy and financing, so that demand for social work graduates could change rapidly in either direction.

In addition to the projected 7,500 market-ready entrants in social work, public affairs will generate 11,400 entrants in other specialties within this field. Those completing training in parks and recreation management will be interested in the projected 500 to 600 average annual openings for recreation workers. Those completing their education in public administration will focus especially on the projected 3,100 to 3,300 average annual openings for public officials and administrators. This category includes a variety of titles, ranging from city clerk to state auditor. Openings for public officials and administrators will also attract applicants with degrees in business administration. Some public affairs graduates specializing in law enforcement will seek employment as policemen or other law enforcement officers. Openings for policemen are not itemized separately under the *Conventional* projection, but are included in the total *Marginal* projection which covers a small proportion of openings in service occupations for college graduates.

Liberal Arts

The lack of direct correspondence between liberal arts majors in areas such as social science, letters, and languages and occupations for which such education is specific makes it very difficult to project the employment outlook for the liberal arts. For the social sciences, for example, only 1,650 average annual openings are projected in the directly related occupations of social scientists and economists, while the market-ready supply is estimated at 22,000.

Of the total range of 228,800 to 241,700 average annual openings estimated for the *Conventional* college job market, 95 percent have been "used up" in correspondence with specific majors in the preceding discussion. Only 9,050 average annual openings for college teachers, research workers, authors, actors, college administrators and religious workers were not included in the supply-demand comparisons detailed earlier for the various fields of study. Obviously, the scant number of openings in this residual group of occupations does not constitute the only market for the remaining 21,000 majors in fields heretofore

unmentioned — letters, foreign languages, theology and interdisciplinary studies.

The traditional mission of a liberal arts education has always been to prepare graduates to adapt across a wide scope of work in a broad spectrum of occupations. A political science major might be employed in an administrative job in local government or a sales position in private industry, while an economist might become a market analyst, a bank official, or a purchasing agent. Indeed, there have never been enough business administrators to fill all the openings for which, at first glance, preparation in business administration may seem most appropriate. Liberal arts, and especially social science majors, through the years, have been employed in administrative and management work in both the public and private sectors.

In recent years it has become more difficult for liberal arts majors to secure employment that they find suitable. To some extent this is a result of the increasing competition from graduates with vocationally-oriented training. Often employers prefer graduates with job and industry-specific preparation. The most practical response to the tough job market for liberal arts majors is to combine their broad education with "skills" courses that enhance employability. History, sociology or English majors who also have a solid foundation in statistics, or computer programming, or personnel administration will be in a stronger competitive position than those who come without preparation in specific skills. Summer employment in business or government also improves chances for liberal arts majors.

The reality is that the vast majority of liberal arts majors will end up in administrative-management occupations if they are fortunate enough to land in the *Conventional* college job market, and in sales and clerical occupations if their niche is in the *Extended* college job market. A denial of this reality has led many in the past to eschew courses that relate to the economic workings of their society. If securing a "good" job in the *Conventional* college job market was a major purpose for such liberal arts majors in attending college, they would be well served by including in their curriculum courses that relate to the everyday operation of the private and public sectors.

One of the complaints employers repeatedly advance is their difficulty in finding people who can communicate effectively, especially in writing. A liberal arts education may be more effective than some other majors in preparing graduates to communicate. Liberal arts majors with good writing skills, who also have taken some practical skills courses, are advised to stress these positive qualities as they compete in the job market with business administration and other vocationally-trained graduates.

METHODOLOGICAL NOTES

Projection of Supply

The projection of degrees at the bachelor's, master's, and doctoral levels is tied to USOE projections of enrollments, degrees, and other parameters.[10] The following national data have been taken into consideration in projecting total degrees for the region at the *baccalaureate* level: total enrollments and the percentage of first-time degree credit enrollment; first-time degree credit enrollments and their relationship to the baccalaureate degrees four years later; and first-time degree credit enrollments as a percentage of 18- to 21-year-old population. The regional share of total United States baccalaureates in 1985 is projected at 28 percent, as compared to 27.1 percent in 1975-76.

At the *master's* and *doctoral* levels the projections are tied to the production in earlier years of baccalaureate degrees as well as to the regional share of projected degrees at these levels for the nation. *First professional* degrees for the region are projected on the basis of detailed examination of expected first-year enrollments in current and developing professional schools in the region.

Not all graduates at any one degree level are entrants into the labor market the year in which they graduate. The following adjustments have been made to account for such graduates:

- 21 percent of all baccalaureates are projected to continue in graduate studies as full-time students. A study of 1971 seniors identified the expected distribution across fields of study of continuing students.[11]
- 8.6 percent of women baccalaureates were subtracted according to the proportion of women 16 to 24 years old with four or more years of college who in 1975 were neither in the labor force nor in college.[12]
- 29.9 percent, on the average, of all master's and doctoral degrees were subtracted to allow for the proportion of persons earning such degrees who were already employed full-time in their fields of study while completing their studies. The percentage varies from 17.1 percent in some disciplines to 47 percent in the field of education.[13]

Baccalaureate "education" degrees were augmented to account for graduates in other disciplines who also earned teacher certificates. National Education Association data were used to identify the appropriate percentage of graduates in special fields to be added to "education" degrees and deducted from their respective disciplines.[14]

Projection of Demand

College graduates are expected to move primarily into jobs classified as Professional-Technical or Management-Administration (the *Conventional* market) and secondarily into jobs classified as Sales or Clerical (the *Extended* market). All other occupations not included in Professional-Technical, Management-Administration, Sales-Clerical comprise the *Marginal* market for college graduates.

For each of the three markets, a range of average annual openings was projected to reflect two different rates of change in the proportion of total employment which college graduates are assumed to represent in these major occupational groups in 1985. The lower limit in the range was obtained by assuming that the increasing educational attainment levels of employed persons will gradually level off. The top of the range was obtained by assuming that educational attainment levels will increase at the same rate as they have since the late 1960s. Table 4 shows the resulting proportions which college graduates are expected to comprise of employment in major occupational groups in 1985 under the two assumptions, as well as the actual proportions for the United States in 1970 and 1976.

Table 4

COLLEGE GRADUATES AS PERCENTAGE OF EMPLOYED PERSONS, 16 YEARS OLD AND OVER, BY MAJOR OCCUPATIONAL GROUPS

	1970	1976	Projected Proportions — 1985	
			Leveled-off Growth	Linear Growth
Professional-Technical	56%	64.7%	68.2%	75.3%
Management-Administration	23	29.0	31.05	41.0
Sales Workers	12	18.7	19.71	27.2
Clerical Workers	5	8.4	8.25	12.3
Marginal Jobs	1.55*	3.98	3.76	5.52

*1971 (18 years old and over)

Source: U.S. Department of Labor, Bureau of Labor Statistics, *Educational Attainment of Workers, March, 1976*, *Educational Attainment of Workers, March, 1971*, and U.S. Bureau of Census, *1970 Census, Occupational Characteristics*, PC(2)-7A

The percentages of *openings* which will have to be filled by college graduates to reach the educational attainment levels projected for *employment* in an occupational category are higher than those shown in Table 4. Since openings comprise only a fraction of employment in any occupational group, it takes a higher college-educated percentage of newly employed workers to raise the average percentage for the entire employed group.

The changes in educational attainment levels for major occupational groups, as shown in Table 4, were then applied to individual occupations within each major group. Within the Professional-Technical group, adjustments were made for some occupations where institutional factors made it clear that all newly hired employees would be college graduates, regardless of what the projected percentages of college graduates might be that resulted from applying the average change for the major group as a whole.

Although in the Professional-Technical group a college preparation has already been a prevailing requirement for employment in many occupations, there is still room for considerable upgrading in others. Continuing changes in licensing requirements in the health fields, for example, will raise educational attainment levels in those occupations. The percentage of college graduates in some of the science and engineering technician operations was still quite low in 1970, and will show significant increases in the next years.

For the Managerial-Administrative group, application of the uniform percentage increase of college-level attainment across all operations leaves some occupations with percentages that will probably be exceeded. For example, in the health and hospital administrator occupation, the projection is that approximately 50 percent of the openings will be for college graduates. This is probably unrealistically low.

In the Sales group, the uniform application of the overall educational attainment projections also leaves the percentage of openings for college graduates somewhat low for specific occupations. The ranges of 35 to 62 percent for insurance salespersons, and of 31 to 52 percent for real estate salespersons are examples of educational attainment levels that are likely to be exceeded, and that will, therefore, accommodate more college graduates than reflected in this report.

APPENDIX A

PROJECTED MARKET-READY ENTRANTS AT THE BACHELOR'S, MASTER'S AND DOCTORAL LEVELS, BY FIELDS OF STUDY, SREB REGION, 1985

	Market-Ready Entrants		Percent of Total
Accounting	11,000		3.9%
Agriculture	5,580		2.0
Architecture & Design	4,020		1.4
Biological Science	10,760		3.8
Business & Management, except Accounting	36,280		12.9
Communications	10,110		3.6
Computer-Information Sciences	2,700		1.0
Education	71,540		25.3
Engineering	15,160		5.4
Fine & Applied Arts	6,700		2.4
Foreign Languages	2,220		.8
Health Fields	20,990		7.5
Nursing		9,640	
Hospitals & Health Administration		450	
Occupational & Physical Therapy		820	
Public Health		690	
Medical Laboratory Technology		1,710	
Dental Hygiene		2,660	
Speech Therapy		2,280	
Home Economics	4,130		1.5
Letters	7,290		2.6
Library Science	1,910		.7
Mathematics	2,970		1.1
Physical Science	4,430		1.6
Psychology	10,920		3.9
Public Affairs & Services	19,140		6.8
Social Work		7,750	
Social Sciences & Area Studies	22,030		7.8
Other Fields	11,350		4.0
Total	281,230		100.0

APPENDIX B

OCCUPATIONS INCLUDED IN SUPPLY-DEMAND COMPARISONS

Academic Field of Study	Occupations
	Health Professions
Hospital Care Administration	Health Administrators
Nursing	Registered Nurses
Occupational Therapy Physical Therapy Speech Audiology	Therapists
Dentistry	Dentists
Medicine	Doctors
Optometry	Optometrists
Podiatry	Podiatrists
Chiropractic Medicine	Chiropractors
Veterinary Medicine	Veterinarians Other Health Practitioners
Pharmacy	Pharmacists
Medical Laboratory Technology	Clinical Laboratory Technicians and Technologists
Radiologic Technology	Radiologic Technologists and Technicians
Dental Hygiene	Dental Hygienists
	Other Professional Fields
Architecture	Architects Surveyors Draftsmen
Accounting	Accountants Assessors, Controllers, Local Public Administration
Computer Science	Computer Programmers Computer Systems Analysts Other Computer Specialists Operations, Systems Research
Communications	Editors and Reporters Public Relations and Publicity Writers

Communications (continued)	Radio and Television Announcers
	Advertising Agents and Salesworkers
Education	Secondary Education Teachers
	Elementary School Teachers
	Kindergarten Teachers
	Adult Education Teachers
	Teacher Aides
	Other Teachers, except College
	School Administrators
	Vocational, Education Counselors
Engineering	Engineers, Aero-Astronautic
	Engineers, Chemical
	Engineers, Civil
	Engineers, Electrical
	Engineers, Industrial
	Engineers, Mechanical
	Engineers, Metallurgical
	Engineers, Mining
	Engineers, Petroleum
	Engineers, Sales
	Engineers, Other
	Electrical, Electronic Technicians
	Industrial Engineering Technicians
	Mathematical Technicians
	Other Engineering and Science Technicians
	Airline Pilots
	Air Traffic Controllers
	Flight Engineers
	Radio Operators
	Tool Programmers
	Other Technicians, except Health
Law	Judges
	Lawyers
Library Science	Librarians
Social Work	Social Workers

Fields with Less Direct Correspondence between Occupations and Academic Field

Agriculture	Agricultural Scientists Agricultural Technicians Foresters, Conservationists Buyers, Shippers, Farm Products Farm Management Advisors
Fine and Applied Arts	Musicians and Composers Writers, Artists and Entertainers Painters and Sculptors Photographers Archivists and Curators Designers
Biology Physical Science	Biologists Chemists Chemical Technicians Life and Physical Scientists
Business Administration, except Accounting	Personnel Workers Managers and Administrators Bank, Financial Managers Credit Managers Buyers, Wholesale, Retail Purchasing Agents, other Buyers Sales Managers, Retail Sales Managers, Wholesale Public Construction Inspectors Other Inspectors Officials, Administrators, Public Postmasters, Mail Superintendents Funeral Directors Building Managers, Superintendents Office Managers Officers, Pilots, Pursers, Ship Officials, Lodges, Unions Railroad Conductors Restaurant, Cafe, Bar Managers Other Managers, Administrators

Business Administration, except Accounting (continued)	Sales Workers Auctioneers Demonstrators Hucksters and Peddlers Insurance Agents, Brokers, etc. Newspaper Carriers and Vendors Real Estate Agents, Brokers Stocks and Bonds Sales Agents Other Sales and Sales Workers Clerical Workers Legal Secretaries Medical Secretaries Other Secretaries Typists Stenographers Bookkeeping, Billing Operators Calculating Machine Operators Computer, Peripheral Equipment Operators Duplicating Machine Operators Keypunch Operators Tabulating Machine Operators Other Office Machine Operators Bank Tellers Billing Clerks Bookkeepers Cashiers Clerical Assistants, Social Welfare Collectors, Bill and Account Counter Clerks, except food Dispatchers Enumerators and Interviewers Estimators, Investigators Expeditors, Production Controllers File Clerks Insurance Adjusters, Examiners Library Attendants, Assistants Mail Carriers, Post Office Mail Handlers, except Post Office Meter Readers Payroll Clerks Postal Clerks Proofreaders Real Estate Appraisers

Business Administration, except Accounting (continued)	Clerical Workers (continued) Receptionists Shipping, Receiving Clerks Statistical Clerks Stock Clerks, Storekeepers Telegraph Messengers Telegraph Operators Telephone Operators Ticket Station Agents Other Clerical Workers
Academic Field of Study is Indeterminate	College Teachers Research Workers Authors Actors College Administrators Religious Workers

FOOTNOTES

1. Richard A. Engels and Eva C. Galambos, *Supply and Demand for College Graduates in the South 1980*. Atlanta: Southern Regional Education Board, 1975.

2. U. S. Department of Health, Education, and Welfare, National Center for Education Statistics, *Projections, Education Statistics to 1985-86*. Washington, D.C.: U.S. Government Printing Office, 1977.

3. U. S. Department of Labor, Bureau of Labor Statistics, *BLS Handbook of Methods*, Bulletin 1910. Washington, D.C.: U.S. Government Printing Office, 1976.

4. U. S. Department of Commerce, Bureau of the Census, *Classified Index of Industries and Occupations*. Washington, D.C.: U.S. Government Printing Office, 1971.

5. "The Second War Between the States," *Business Week*, May 17, 1976, p. 98.

6. U. S. Department of Labor, Bureau of Labor Statistics, *Occupational Outlook for College Graduates, 1978-79 Edition*, Washington, D.C.: U. S. Government Printing Office, 1978, p. 25.

7. A. J. Jaffe, Joseph Froomkin, "Occupational Opportunities for College-Educated Workers, 1950-75," *Monthly Labor Review*, June, 1978, p. 15.

8. U. S. Department of Labor, Bureau of Labor Statistics, *Occupational Outlook for College Graduates, 1978-79 Edition*. Washington, D.C.: U. S. Government Printing Office, 1978, p. 26.

9. *Facts About Nursing 76-77*. Washington, D.C.: American Nurses Association, p. 93.

10. U. S. Department of Health, Education, and Welfare, National Center for Education Statistics, *Projections, Education Statistics to 1985-86*. Washington, D. C.: U. S. Government Printing Office, 1977.

11. The estimate of 21 percent of the baccalaureates continuing as full-time graduate students is made on the basis of several sources. Alexander Astin's study of 1969 freshmen shows that 22.3 percent are in graduate school five years later. Since only approximately 62 percent of the freshmen had earned bachelor's degrees within five years, the 22.3 percent translates into 36 percent of those completing

bachelor's degrees. (Alexander Astin, *Four Critical Years*. San Francisco: Jossey-Bass Publishers, 1977, p. 111) The 36 percent as estimated from Astin's data includes full-time and part-time enrollments. In a statewide survey of the June 1977 graduates of institutions in Georgia, 18 percent of the baccalaureates indicate that pursuit of further education is their "primary" activity. A University of Illinois survey of the system's 1975 bachelor's graduates shows that in the following year 25 percent were attending school full-time. See also Leonard L. Baird, *The Graduates*. Princeton: Educational Testing Service, 1973, p. 110, for data used to distribute baccalaureates, by majors, for further education.

12. U. S. Department of Labor, Bureau of Labor Statistics, *Students, Graduates, and Dropouts in the Labor Market*, Special Labor Force Report 191. Washington, D.C.: U. S. Government Printing Office, 1976.

13. John A. Creager, *The American Graduate Student: A Normative Description*. Washington, D. C.: American Council on Education, 1971, p. 48.

14. *Teacher Supply and Demand in Public Schools 1976*, Research Memo 1977-3, Washington, D.C.: National Education Association, June 1977, p. 7.